Artificial Intelligence: Refugee Registration and Identity Management in India

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Abstract: Artificial Intelligence (AI) is revolutionizing various sectors, including refugee registration and identity management. India, which hosts a significant number of refugees from neighboring countries, has employed AI-powered systems such as Aadhaar, a biometric identification platform, to streamline refugee identification and management. This paper investigates how AI has been integrated, assessing its impact on improving efficiency, preventing fraud, and ensuring access to services. However, the paper also critically examines how AI technologies can make certain groups of refugees more vulnerable by raising concerns about privacy, surveillance, and data security, which can disproportionately affect marginalized refugee populations.

Keywords: Refugees, Artificial Intelligence, Refugee Registration and Management

Introduction

The global refugee crisis has imposed considerable challenges on host nations, including India, which accommodates substantial numbers of refugees and asylum seekers from Sri Lanka, Tibet, Myanmar, Bangladesh, Afghanistan, and other neighboring regions. According to the United Nations High Commissioner for Refugees (UNHCR), India hosts 257,497 refugees, 22,516 stateless individuals, and 12,427 asylum seekers (UNHCR, 2024). Effective identification and registration of these populations are fundamental to ensuring access to essential services and humanitarian aid. However, traditional registration processes have been characterized by inefficiencies, duplication, and instances of fraud [1], complicating the management and distribution of resources.

The integration of digitization and Artificial Intelligence into refugee registration systems has introduced transformative possibilities. Technologies such as India's Aadhaar biometric system and the UNHCR identity card have facilitated expedited data processing, precise identity verification, and streamlined aid distribution. These advancements demonstrate the potential of AI to enhance the inclusivity and efficiency of refugee management. However, the adoption of such technologies is not without challenges. Ethical and security concerns, including privacy violations, heightened surveillance, and potential data exploitation, disproportionately affect already vulnerable refugee groups such as Rohingyas in India.

This paper critically examines India's use of AI in refugee registration and identity management, analyzing both its transformative potential and the ethical and practical challenges it presents, particularly for refugee populations. It explores the dual impact of AI in these systems, emphasizing

the benefits it offers while also addressing the inadvertent risks faced by marginalized groups. The paper underscores the need for a balanced approach that maximizes the technological advantages of AI while mitigating ethical and security risks, particularly concerning data protection and ensuring equitable access to services.

Artificial Intelligence (AI): An Overview

Artificial Intelligence has increasingly permeated and transformed a wide range of industries and technologies in recent years. Its rapid development and diverse applications have posed significant challenges to defining its scope and essence. Nils J. Nilsson (2009) defines AI as “activity devoted to making machines intelligent, and intelligence is that quality that enables an entity to function appropriately and with foresight in its environment” (p.13). Similarly, a Stanford University study on *Artificial Intelligence and Life in 2030* describes AI as “a science and a set of computational technologies that are inspired by—but typically operate quite differently from—the ways people use their nervous systems and bodies to sense, learn, reason, and take action” (Stanford University, 2016, p.4).

In the 21st century, AI underpins a constellation of mainstream technologies that significantly impact various sectors, including security, economic development, and transportation. These technologies increasingly shape daily life, and their influence extends to marginalized and vulnerable populations, including migrants and refugees. Several countries have adopted or plan to integrate AI into their immigration systems to improve aid distributions, strengthen security measures, and streamline the recruitment and management of foreign nationals (Blackmore, 2024). The growing use of AI in asylum and immigration systems highlights its potential for innovation in these fields. The UNHCR has piloted AI-based initiatives such as *Project Jetson* [2], an analytics platform designed to predict the movement of internally displaced persons, and simulation modeling to optimize refugee settlement planning. Similarly, machine-learning software solutions like ARiN [3] are being employed to screen applications from refugees and immigrants, facilitating more efficient processing. Moreover, robotic systems [4] are also being explored for deployment in humanitarian aid delivery to enhance safety and efficiency while restoring dignity to affected populations.

Despite its transformative potential, AI’s application raises critical concerns about fairness, transparency, and safety. Emerging research indicates that AI can inadvertently exacerbate discrimination, fostering racism and xenophobia against refugees and asylum seekers (Ahmad, 2024). These biases often stem from datasets that reflect existing societal prejudices, which, when embedded in AI systems, reinforce systemic inequalities. India is no exception to the global trend of leveraging AI in refugee registration and management.

AI in Refugee Registration and Identity Management

The application of Artificial Intelligence in refugee registration and identity management has seen significant growth in recent years. In India, refugee management operates under two primary frameworks: state-level governance and UNHCR’s oversight. Certain refugee groups, such as Tibetan and Sri Lankan refugees, fall under the jurisdiction of the Indian government, while others, including Afghan and Rohingya refugees, are managed directly by the UNHCR.

For refugees registered by the Indian government, digital identity mechanisms such as Aadhaar cards and Permanent Account Number (PAN) cards have become integral to their economic and

social inclusion. These digitized e-IDs enable access to national welfare schemes and foster economic participation by allowing refugees to contribute to the formal economy (Mundia, 2022). Aadhaar, India's unique biometric identification system, utilizes advanced technology, including fingerprint, iris scan, and facial recognition, to create verifiable identities. The Indian government has recently announced enhancements to the PAN card system, now referred to as "PAN 2.0," which includes a dynamic QR code and a secure data vault aimed at minimizing data theft and ensuring compliance with international security standards (Sharma, 2024).

Refugees residing in India on Long-Term Visas (LTV) are eligible for Aadhaar cards, PAN cards, and driving licenses, with their LTV documentation serving as valid address proof. The Aadhaar-linked identity facilitates seamless access to essential services such as healthcare, education, and welfare programs, with AI-powered fingerprint authentication enhancing the security and efficiency of the system (Sharma, 2023). These innovations aim to optimize service delivery while reducing instances of identity fraud and duplication (Stanly, 2023).

However, refugees managed by the UNHCR who lack LTV documentation face significant barriers. While these individuals benefit from protection and limited assistance, they do not possess government-issued IDs, restricting their access to banking services, welfare schemes, and broader economic opportunities. Expanding national welfare and social protection systems to include all refugees, regardless of their legal status, would align with India’s commitment to inclusivity and ensure that vulnerable populations are not left behind (Mundia, 2022).

For refugees under UNHCR management, the Population Registration and Identity Management Ecosystem (PRIMES) [5] serves as the cornerstone of their identity registration framework. PRIMES integrates multiple digital tools and repositories for managing biographic and biometric data, case management, and the delivery of targeted protection and assistance. This system includes applications such as the Biometric Identity Management System (BIMS), the Global Distribution Tool (GDT), and IrisGuard, which collectively enable efficient registration, documentation, and aid distribution.

AI technologies are deeply embedded in both government and UNHCR systems, driving efficiency in data collection, analysis, and service delivery. By automating the processing of biometric data, AI reduces human errors, accelerates registration processes, and detects duplicate entries, thereby ensuring that services are allocated equitably and securely. Furthermore, AI's integration into these systems facilitates access to essential services for refugees, streamlining processes that are critical to their welfare and integration. Despite these advancements, challenges remain, particularly for refugees who lack the necessary documentation or face systemic barriers to inclusion. Addressing these gaps requires a commitment to inclusive policy design and robust technological safeguards to ensure that AI-driven systems prioritize equity and transparency.

Improved Aid Distribution and Access to Services

Refugees registered through Aadhaar benefit from improved access to essential services, including food rations, healthcare, and educational opportunities. The Aadhaar system leverages Artificial Intelligence to match biometric data, such as fingerprints and iris scans, creating unique identities for each individual. As a multimodal biometric system, it integrates multiple biometric traits, including facial recognition, iris patterns, and finger and thumb prints, alongside demographic information. Through the application of AI-powered techniques such as multimodal biometric matching, feature

fusion, and image enhancement, Aadhaar ensures reliable identification, even under challenging conditions. Machine learning models embedded within the system enhance its robustness by enabling false match detection, improving data quality, and identifying anomalies. These features collectively ensure that the distribution of aid is efficient, fraud is mitigated, and administrative costs are reduced. Aid organizations can use this system to verify the identities of beneficiaries, thereby minimizing resource misallocation. For instance, refugees from Sri Lanka and Tibet have gained access to health, education, and food programs under various Indian government schemes through Aadhaar-linked registration (Ministry of Foreign Affairs, 2022).

AI-based tools have also expanded their utility in supporting refugees beyond registration. For example, the UNHCR utilizes AI systems to analyze refugees' legal cases, enabling accurate tracking and facilitating access to food, healthcare, and legal aid. Chatbots and other AI-driven platforms help refugees navigate complex asylum procedures, access legal guidance, and understand available support services (Sheppard, 2016). These systems reduce reliance on human intervention, streamlining the process of providing critical information.

During the COVID-19 pandemic, AI further demonstrated its value in refugee assistance. The UNHCR and World Health Organization (WHO) implemented AI-powered telemedicine platforms to provide remote consultations for refugees in camps and shelters. These systems were instrumental in screening COVID-19 symptoms and prioritizing patients requiring urgent medical attention, allowing refugees to access virtual medical care while minimizing exposure risks (Njagi, 2024). Similarly, educational platforms such as Khan Academy and BYJU's utilized AI to tailor lessons for refugee communities, supporting learning in native languages and enabling transitions to Hindi or English-language curricula (American India Foundation, 2020; Khan Academy, 2021).

Language barriers, a common challenge for refugees and aid organizations, have been addressed through AI-driven translation services. These tools enable organizations such as the UNHCR to effectively communicate essential information regarding healthcare, legal rights, and housing to refugees. In India, Tibetan and Sri Lankan refugees have accessed ration supplies through Public Distribution Systems (PDS) linked to Aadhaar, with AI ensuring accurate verification and appropriate allocation of resources (Aman & Shanker, 2018).

Additionally, AI played a vital role in emergency financial assistance during the COVID-19 crisis. Cash-based transfers linked to Aadhaar data provided migrants with the means to purchase essential items such as food and medicine via mobile platforms (Mukherjee, 2020). AI's ability to analyze demographic and registration data has further enabled targeted assistance programs, ensuring that vulnerable populations, including women, children, and the elderly, receive services tailored to their specific needs.

Despite these advancements, challenges persist in the equitable implementation of AI-driven systems. Certain refugee groups face barriers that not only increase their vulnerability and the risk of exclusion but also hinder their engagement with biometric technologies. These challenges include limited access to technology, low digital literacy, and physical or cultural obstacles. These issues can result in exclusion from critical services and exacerbating existing inequalities within refugee populations. Addressing these disparities requires a commitment to designing inclusive and accessible AI systems that prioritize equity and ensure no refugee is left behind.

AI and the Vulnerability in Refugee Registration and Identity Management

While AI offers transformative opportunities, its application also raises significant ethical and practical concerns. In the context of refugee registration and identity management, AI-based systems, such as Aadhaar, present both benefits and risks. Despite the promise of streamlined registration processes and enhanced service delivery, the misuse of AI can exacerbate vulnerabilities, increase surveillance, violate privacies, and lead to exclusionary practices that disproportionately affect marginalized populations.

AI-driven biometric systems like Aadhaar, which rely on data such as fingerprints and iris scans, can inadvertently exclude refugees who are unable to provide accurate biometric data. For instance, individuals with worn fingerprints due to manual labor or physical disabilities face challenges in completing the registration process, potentially barring them from accessing essential services (Shagun, 2024). Similarly, refugees from rural areas or with limited technological literacy often struggle with the digital components of these systems, resulting in delays or exclusion from aid programs. Stateless individuals and those lacking traditional documentation are particularly vulnerable, as AI systems may fail to recognize their identities, further marginalizing them within an already precarious legal framework.

AI systems also introduce significant surveillance risks. For example, Aadhaar's capacity to track and monitor the movements of registered individuals can create a climate of fear among refugees, especially those fleeing persecution. The Rohingya community in India provides a stark example. Following the Indian government's declaration in 2017 that Rohingya refugees were "illegal" and subject to deportation, access to Aadhaar and Long-Term Visas (LTVs) was restricted for this group. Their biometric and demographic data, initially collected for inclusion in Aadhaar, were integrated into a database of "illegal immigrants," further increasing their vulnerability (Brinham & Johar, 2024). In September 2018, the Indian government directed states to collect biometric details of Rohingyas and other undocumented immigrants as part of a nationwide security initiative (PTI, 2018). This directive exacerbated fears of deportation within the Rohingya community, intensifying their precarious legal status.

The collection, storage, and use of refugee data by AI systems raise additional concerns. Refugees often lack agency over how their data is managed, making them susceptible to misuse by governments or third-party entities. Sensitive biometric and demographic data stored in AI-driven systems are at risk of being accessed by hackers or malicious actors, potentially leading to identity theft or physical harm. The misuse of such data by state actors can further erode trust between refugees and host governments, undermining efforts to provide humanitarian aid and protection. Refugees from politically unstable regions are particularly at risk, as leaked data could expose them to persecution or exploitation by hostile parties.

The broader misuse of AI technologies extends beyond refugee management. AI has been exploited to generate fake news, deep fakes, and disinformation, spreading hate speech and fabricated political narratives (Kertysova, 2018). Algorithmic targeting on social media amplifies these harms, exacerbating social divides and reinforcing systemic biases. The inclusion of biased datasets in AI systems used for refugee management risks perpetuating harmful stereotypes and discriminatory practices, further marginalizing already vulnerable populations.

While AI has the potential to revolutionize refugee registration and identity management by enhancing efficiency and accuracy, its application must be approached with caution. The risks of

exclusion, surveillance, and data exploitation are particularly pronounced for refugees, who often occupy precarious legal and social positions. Addressing these concerns requires robust data protection frameworks, greater transparency, and inclusive system designs that prioritize the rights and dignity of all refugees. Without such safeguards, AI may inadvertently deepen the very inequalities it seeks to mitigate.

Conclusion

AI has the potential to transform refugee registration and identity management in India by improving efficiency, preventing fraud, and ensuring better access to services. Refugees who successfully register in the Aadhaar system report faster and more reliable access to services such as healthcare, food rations, and education. The use of AI ensures that services are delivered equitably, reducing instances of fraud or resource wastage. However, it is equally important to recognize the vulnerabilities that these technologies create, particularly for marginalized refugee groups. AI systems can exclude individuals who cannot easily provide biometric data, increase the risk of surveillance, and expose sensitive data to misuse.

To mitigate these risks, it is essential to adopt strong data protection policies, ensure transparency in how AI systems are used, and implement safeguards to prevent the exclusion of vulnerable refugee populations. Refugees should also be involved in decisions about how their data is collected and managed to foster trust and better protect their rights. A human rights-based approach should be applied to ensure refugees and asylum seekers are treated with due dignity.

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Notes

1. Please refer to the link for more information: https://www.unhcr.org/resettlement-handbook/2-managing-resettlement-activities/2-6-fraud-and-misconduct/

2. Please refer to the link for further information: https://aiforgood.itu.int/about-us/un-ai-actions/unhcr/

3. Please refer to the link for further information: https://aiforgood.itu.int/about-us/un-ai-actions/unhcr/

4. Please refer to the link for further information: https://aiforgood.itu.int/event/ai-powered-vehicles-for-humanitarian-help-deployment/

5. Please refer to the link for further information: https://www.unhcr.org/what-we-do/protect-human-rights/protection/registration-and-identity-management

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